

REMARKS

Applicant has amended the claims to clarify the differences between a conventional "drogue parachute" and the Applicant's novel "ram-air drogue parachute." Although the two phrases are similar, the purpose of a standard drogue parachute is markedly different than the purpose of the Applicant's ram-air drogue parachute. The function of the claimed ram-air drogue parachute is for guiding the descent of a payload while a drogue parachute (which is usually round rather than rectangular as is the ram-air drogue parachute that is a part of this invention) may function to extract a payload from an aircraft, stabilize and slow down the payload during its descent, or to extract other larger parachutes, such as recovery parachutes, for final landing of the payload. As described in the specification by the Applicant, the purpose of said ram-air drogue parachute is to control the initial rate of descent of a payload before deployment of a recovery parachute and to guide the descent of said payload in terms of the direction of descent and location of landing target site. The claimed ram-air drogue parachute also serves to slow the rate of descent of said payload although to a much lesser degree than the slowing effect of a recovery parachute.

The Applicant's ram-air drogue parachute is not attached to a recovery parachute, but instead, connects with one end of the suspension plate that is a part of the control box of this invention. Therefore, the ram-air drogue parachute does not aid in the extraction and deployment of any recovery parachute. As shown in Figure 5 of the application, once the recovery parachute is deployed, the ram-air drogue parachute deflates and hangs separately to the side of the payload during the remainder of the descent. When an aerial delivery device with attached payload is first dropped from a plane, the ram-air drogue parachute, which is connected to the suspension plate of the control box, inflates. See attached Exhibits A and B. The smaller ram-air drogue parachute

and the claimed descent control system are used to a lesser degree to slow the descent of the payload and primarily to guide and steer the payload in a specific direction to a specific target site. As explained in the specification, the ram-air drogue parachute allows a controlled rapid rate of descent for the payload that is particularly desirable for use in military applications in which a payload may be under enemy fire. Upon reaching a predetermined altitude, a means for activating the recovery parachute deploys said recovery parachute, which is usually substantially larger than said ram-air drogue parachute, to decrease the rate of descent significantly for a soft landing of the payload. See Exhibits A and C. As described in the specification (and as shown in the Exhibits), a small pilot (or conventional drogue) parachute may be used to extract the recovery parachute. This small pilot or conventional drogue parachute is does not have the same structure or function of the ram-air drogue parachute of the invention, which is used to steer and guide and payload toward a target site. Exhibits A and D illustrate the larger recovery parachute safely carrying the payload to the target site with the deflated, smaller ram-air drogue parachute hanging separately to one side below the payload. The structures and order of connection of the ram-air drogue parachute with relation to the recovery parachute and to the payload clearly differs in a significant way from the devices disclosed in the prior art cited by the Examiner.

The Examiner's office action rejection of claims 1-4, 8-10, 14, 15, 17, and 19 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement, is respectfully traversed. Claim 1 has been amended to clarify the language used to describe the descent control system and its connection to the overloaded ram-air drogue parachute. Claims 2-4, 8-10, 14, 15, 17, and 19 are all dependent claims of claim 1, and thus, by amending claim 1 in response to the Examiner's rejection, said additional claims are also clarified with respect to the descent control

system and the connection of said system to the overloaded ram-air drogue parachute. The claims now clearly describe subject matter that, taken together with the specification, enables one skilled in the art to make and/or use the applicant's invention. Therefore, the Examiner's rejection of claims 1-4, 8-10, 14, 15, 17, and 19 under 35 U.S.C. 112, first paragraph, cannot be sustained.

The Examiner's office action rejection of claims 1, 4, 8-10, 14, 15, 17, and 19 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, is respectfully traversed. Claim 1 has been amended to show that "said drogue parachute" is the "overloaded ram-air drogue parachute." Claims 4, 8-10, 14, 15, 17, and 19 depend upon independent claim 1, and thus, the amendment of claim 1 clarifies the meaning of "said drogue air parachute" as the phrase pertains to those dependent claims. Thus, the Examiner's rejection of claims 1, 4, 8-10, 14, 15, 17, and 19 under 35 U.S.C. 112, second paragraph, cannot be sustained.

The Examiner's rejection of claim 22 under 35 U.S.C. 102(b), as being anticipated by U.S. Patent No. 5,899,415, issued to Conway et al., on May 4, 1999, is respectfully traversed. The '415 patent discloses use of a drogue parachute to stabilize a payload vehicle rather than for guiding the descent of a payload as claimed by the Applicant. The drogue parachute of the '415 patent also differs from the Applicant's ram-air drogue parachute in that said drogue parachute of the '415 patent is not capable of being steered and is not of a ram-air design. Claim 22 has been amended to include an additional element, namely a "means for directing the ram-air drogue parachute means so that said ram-air drogue parachute means lands at or near a specified target location." Moreover, claim 22 has also been amended to state that the ram-air drogue parachute means for guiding and decelerating the descent of a payload, while still allowing said payload to continue

falling at a rapid velocity, reduces the amount of time said payload is in the air while the means for reducing the rate of descent provides the payload with a soft landing. As a result of this amendment, the Examiner's rejection of claim 22, based upon 35 U.S.C. 102(b) and the Conway et al. reference, cannot be sustained.

Finally, the Examiner's rejection of claims 1, 4, 8-10, 14, 15, 17, and 19 under 35 U.S.C. 103(a), as being unpatentable over U.S. Patent No. 6,622,968, issued to St. Clair et al., on September 23, 2003, in view of U.S. Patent No. 4,440,366, issued to Keeler et al., on April 3, 1984, and U.S. Patent No. 5,678,788, issued to Hetzer et al., on October 21, 1997, is respectfully traversed. The '968 patent teaches round-shaped drogue parachutes used for deploying larger parachutes, but does not disclose the use of a rectangular ram-air drogue parachute for guiding the descent of a payload as described by the Applicant. In In re Fritch, 972 F.2d 1260 (Fed. Cir. 1992), the Federal Circuit Court of Appeals stated that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." Moreover, on page 4 of the Office Action, the Examiner states that "[i]t would have been obvious to one skilled in the art at the time the invention was made to have used ram air drogue parachute [sic] that are controlled via servo motors remotely for steering in St. Clair et al's system as taught by Hetzer et al and Keeler et al to safely and efficiently land the cargo to the ground in the correct time and place." Clearly, by this language, the Examiner is attempting to apply the "obvious to try" test to Applicant's invention in determining whether said invention is obvious under 35 U.S.C. § 103(a).

Regarding the "obvious to try" test, the Court of Customs and Patent Appeals has previously stated:

[A]pplication of the “obvious to try” test would often deny patent protection to inventions growing out of well-planned research which is, of course, guided into those areas in which success is deemed most likely. These are, perhaps, the obvious areas to try. But resulting inventions are not necessarily obvious. Serendipity is not a prerequisite to patentability. Our view is that “obvious to try” is not a sufficiently discriminatory test.

In re Lindell, 385 F.2d 453 (C.C.P.A. 1967). Therefore, the Examiner’s assertion that the Applicant’s invention is obvious due to the Examiner’s own belief, in hindsight, that Applicant’s use of the ram-air drogue parachute, descent control system that includes servo motors, and recovery parachute attached to a payload, all of which are remotely controlled, was obvious to try does not set forth a sufficiently discriminatory test upon which the Examiner may rely to reject the Applicant’s claims under 35 U.S.C. § 103(a). The Examiner may not use as an element of the obvious rejection that one of ordinary skill in the art would have arrived at the invention by trying different alternative structures or materials, such as the remotely-controlled servo motors used in the present invention. None of the references supplied by the Examiner teach or suggest the combination of an overloaded ram-air drogue parachute for guiding and steering a payload to an intended target site rapidly at first to reduce the descent time, a descent control system including servo motors and a signal receiver, and a recovery parachute. Thus, the Examiner’s rejection of claims 1, 4, 8-10, 14, 15, 17, and 19 under 35 U.S.C. § 103(a) cannot be sustained.

With respect to claim 14, the Applicant respectfully traverses the Examiner’s rejection of claim 14 under 35 U.S.C. 103(a), as being obvious because “joysticks on a remote control are notoriously well known.” Applicant objects to the Examiner’s use of the Examiner’s own personal knowledge to determine the level of ordinary skill necessary to discover that joysticks can be used to remotely control servo motors, which are part of a descent control system, to

guide a parachute-equipped aerial delivery device quickly through the air, so as to reduce descent time, to an intended target location. Furthermore, the Examiner's unsupported statement that joysticks are "notoriously well known" strongly implies that the Examiner based the rejection of claim 14 upon the Examiner's own ideas of basic knowledge and common sense, which are not based upon any substantial evidence. In In re Zurko, 59 U.S.P.Q.2d 1693, 1697 (Fed. Cir. 2001), the Federal Circuit stated:

With respect to core factual findings in a determination of patentability, however, the Board cannot simply reach conclusions based on its own understanding or experience- or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings.

The Examiner is held now to this same standard, which requires the Examiner to provide to the applicant substantial evidence of obviousness that is not founded merely on the basic knowledge or common sense of the Examiner. The Examiner's ability to use personal knowledge is controlled by 37 C.F.R. 1.104(d)(2), which states:

When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons.

The Examiner's brief statement that "joysticks on a remote control are notoriously well known" does not provide the applicant with a basis that is specific as is possible for the Examiner's rejection of claim 14. The Examiner has not demonstrated that using joysticks to remotely control servo motors in the control box of an aerial delivery box is well known in the art. The applicant hereby requests that the Examiner provide an affidavit under 37 C.F.R. 1.104(d)(2), to support the Examiner's reference to the Examiner's own personal knowledge concerning the use

of joysticks for the aforementioned purposes. For the reasons above, the Examiner's rejection of claim 14 under 35 U.S.C. 103(a) cannot be sustained.

The applicant also respectfully traverses the Examiner's rejection of claims 2 and 3 under 35 U.S.C. 103(a), as being unpatentable over St. Clair et al., as modified by Hetzer et al., and Keeler et al., as applied to claim 1, and in view of U.S. Patent No. 2,545,248, issued to Winzen et al., on March 13, 1951. The cover plate taught in Winzen et al., is not structurally or functionally equivalent to the suspension plate of the applicant's invention. The cover plate disclosed in Winzen et al., is a detachable planar cover secured by screws over an upper member of a control unit to protect various components of that invention which are housed within the upper member of said control unit. The cover plate includes an aperture that permits an annular ring to protrude beyond the surface of said plate, said ring being used to connect the parachute risers to the control unit.

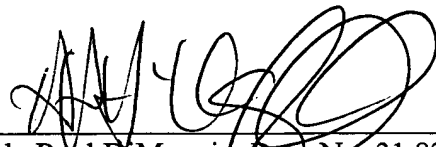
Unlike the cover plate of Winzen et al., the suspension plate of applicant's invention include numerous attachment points comprising apertures at which the parachute riser straps are connected at one end and a payload suspension point on the opposite end for engaging payload support straps that are secure and retain the payload. As is stated in paragraph 37 of the application, the design of the suspension plate, wherein the ram-air drogue parachute attachment points are located generally at one end above the payload suspension point, significantly reduces, if not altogether eliminates, the potential for twisting and tangling of the ram-air drogue parachute riser straps and/or ram-air drogue parachute suspension lines during the expansion of the ram-air drogue parachute. The only similarity between the applicant's suspension plate and the cover plate of the prior art is that the applicant's suspension plate may be connected by

Applicant: Strong, Edward
Serial No.: 10/709,186
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screws to one side of a control box that is a part of the invention. Winzen et al., does not teach the use of a suspension plate, as described by the applicant, for serving as an attachment apparatus for ram-air drogue parachute riser straps and payload suspension lines as well as for reducing or eliminating the potential for twisting and tangling of the ram-air parachute riser straps and/or ram-air parachute suspension lines during the expansion of said ram-air drogue parachute. Based upon the prior art relied upon by the Examiner, using the applicant's suspension plate for the above-stated purposes would not have been obvious to one skilled in the art at the time applicant's invention was made. Because the Examiner has relied on prior art which does not teach the suspension plate of applicant's invention, the Examiner's rejection of claims 2 and 3 under 35 U.S.C. 103(a) cannot be sustained.

If there are any additional charges, including extension of time, please bill our Deposit Account No. 13-1130.

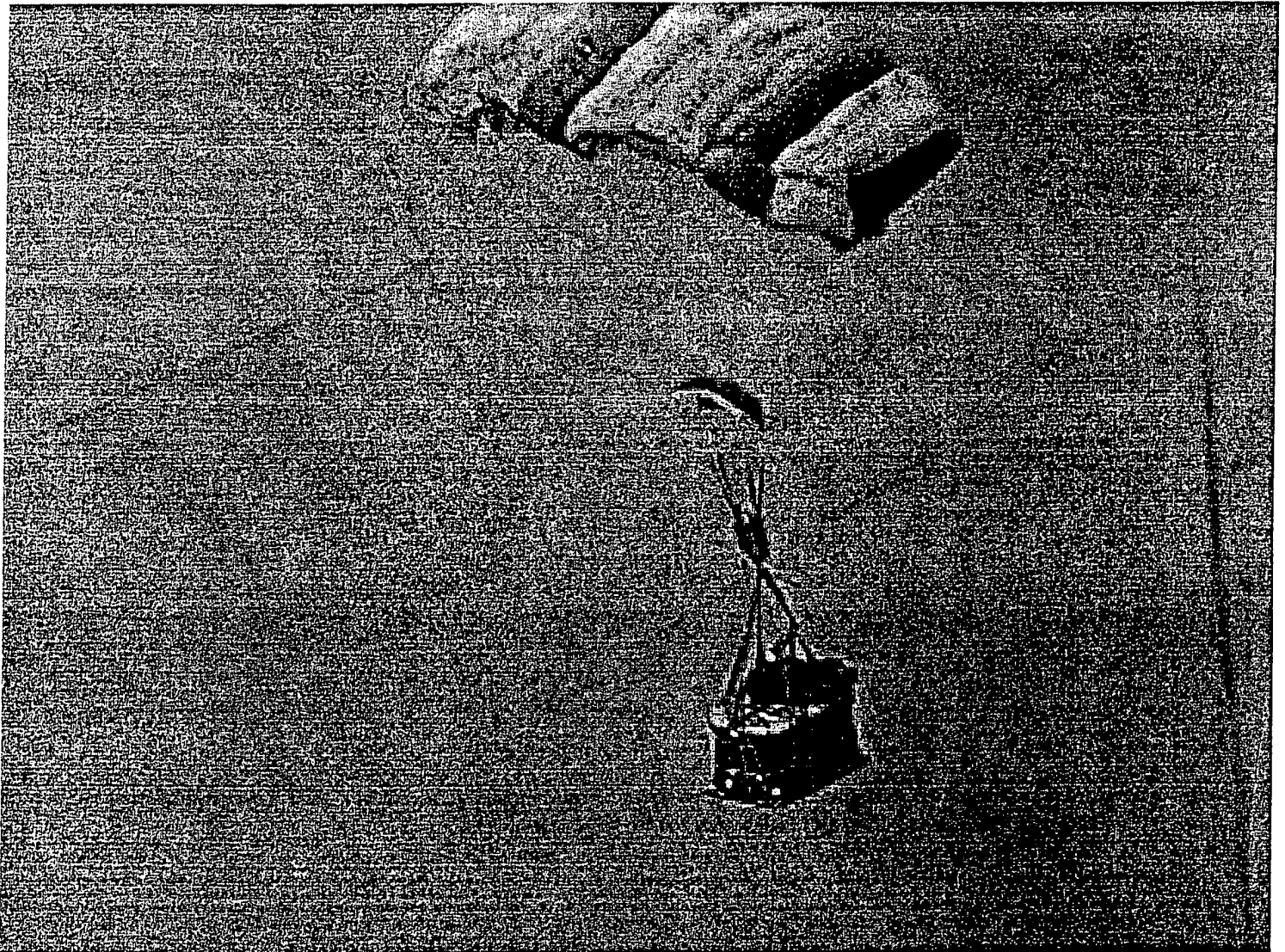
Respectfully submitted,



Dale Paul DiMaggio, Reg. No. 31,823
Malin, Haley & DiMaggio, P.A.
1936 South Andrews Ave.
Fort Lauderdale, Florida 33316
Tel: (954) 763-3303
Fax: (954) 522-6507
E-Mail: INFO@mhdpatents.com

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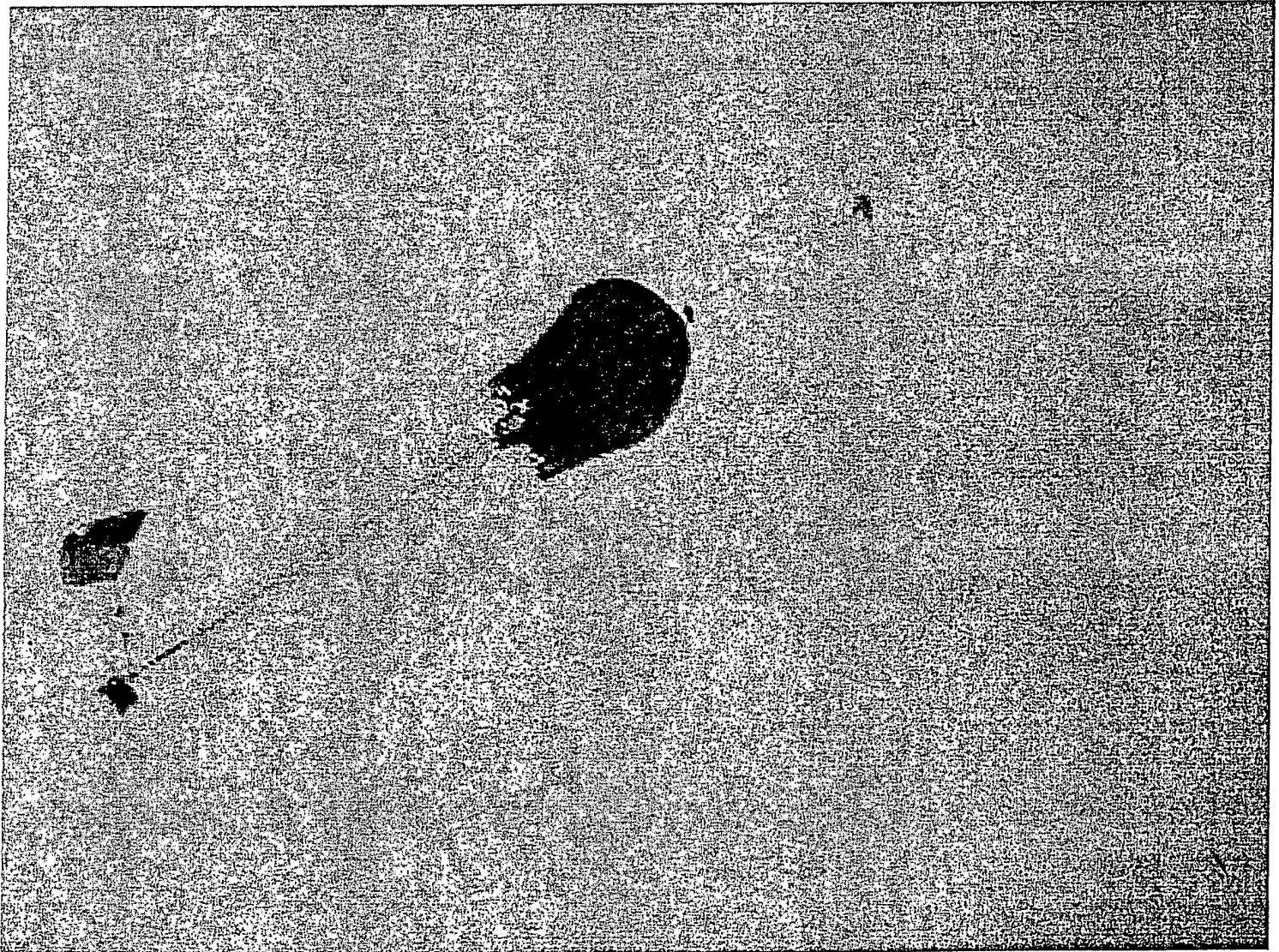
Ram-air Droque in full flight.
Visible is the Control Box, the Recovery Parachute.

EXHIBIT

B

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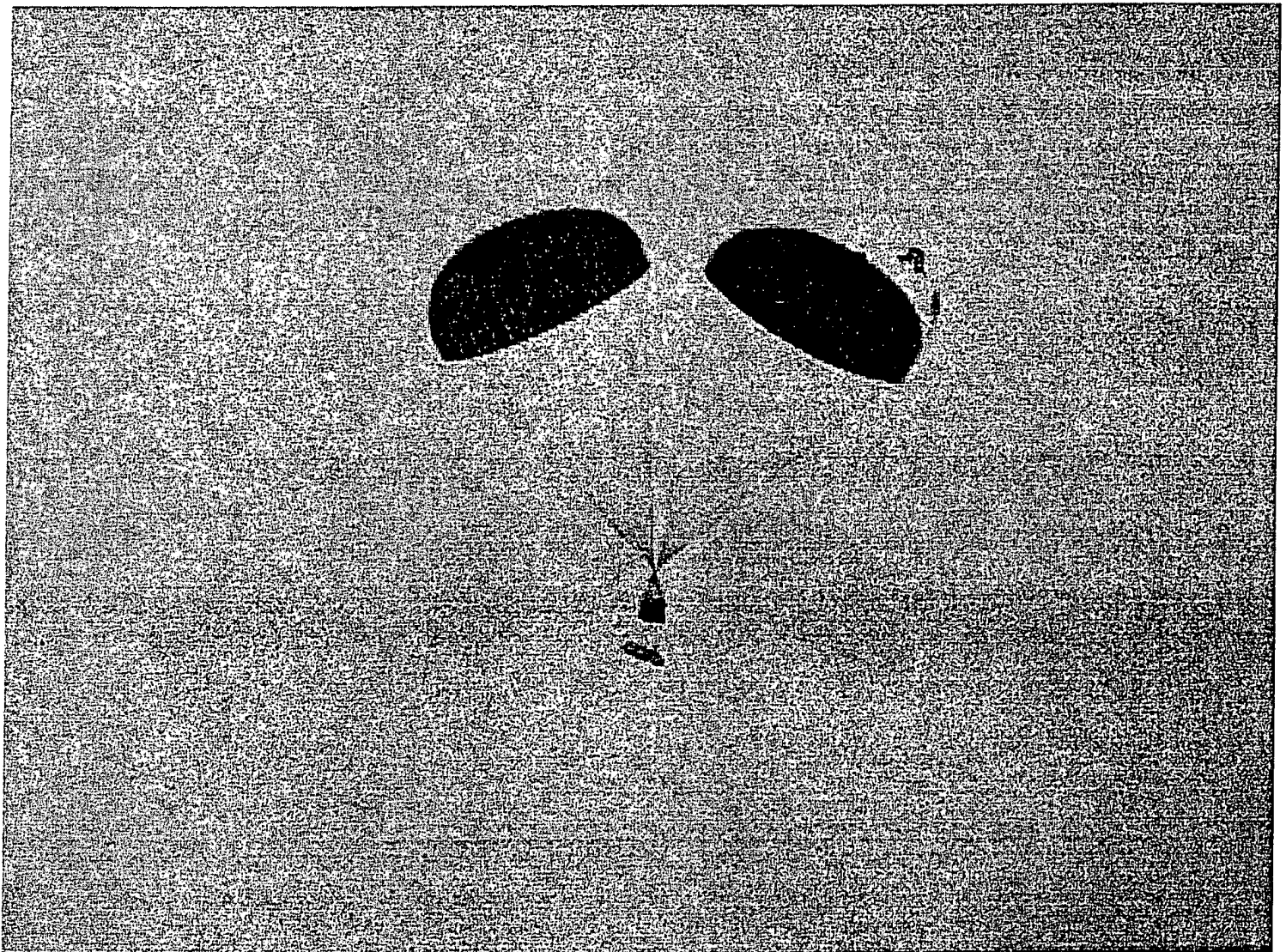
Round drogue parachute deploying the Recovery Parachute.
Ram-air drogue is still flying. Note the angle of the trajectory,
Forward speed is about 70 mph, descent speed is about 70 mph.

EXHIBIT

C

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Full deployment of two recovery parachutes with load of about
3,000 lbs. Note ram-air drogue hanging off to back.
Note round drogue and pilot chute on top of recovery parachute.

EXHIBIT

D